

AQS Audit Levels - Software Release Notes for December 12, 2011

Topic:

Accuracy audit levels expanded to 10, rather than 5. Accuracy transactions are used to report QA data for annual performance evaluations, semi-annual flow rate audits, and lead audit strip results.

1. The RA accuracy transaction continues to have 5 audit level slots (actual and indicated values) only.

It has not been modified. The RA transaction still has 5 audit level slots (actual and indicated values) to prevent a need for redesign of State/Local/Tribal Agency data systems.

2. Audit levels are now assigned in one of two ways:

- a) For **flow audits**, the value of audit_class is FLOW, and the reported units must be units of flow. The audit level number is determined from the position on the transaction. (No change from past practice.) Up to five flow audit pairs can be reported for one audit using one transaction. For any parameters that do not have audit level ranges defined on the audit_levels table (such as flow audits), the position of the values on the transaction determine the audit level number.
- b) For **performance evaluations**, the audit_class is ANALYTICAL and the reported units are units of concentration.

The audit level number is determined from the actual value for each audit level pair on the transaction. This means that the audit level numbers will not necessarily correspond to the position on the transaction, and that you can now report the same level multiple times on one transaction without generating an error. (Note: 40CFR Part 98 does not define audit level ranges for non-criteria parameters. For these parameters that do not have audit level ranges defined on the audit_levels table, the position of the values on the transaction are used to determine the audit level number, which was the previous behavior for all parameters.)

3. The ability to report the same level more than once for a performance evaluation results in two changes to the way AQS processes accuracy data.

- a. You can now store many audit pairs. Multiple transactions for the same monitor for the same date and accuracy audit id number can be successfully submitted. AQS no longer rejects duplicate level numbers for the same audit... so even though we do not anticipate that more than 4 different levels will be needed, this enhancement allows duplicate levels to be reported.
- b. Update transactions can be considered to be a delete transaction followed by an insert transaction. When an update transaction is submitted, all of the existing audit pairs for the monitor for the date and the audit id will be deleted. Then the new audit pair data on the transaction will be inserted.

4. The Accuracy Report (AMP247) has been enhanced to show the Accuracy Audit ID and the Audit Level/Concentration Level for each Actual Value and Indicated Value.

Accuracy Type	Monitor ID	Accuracy Audit ID	Conc Level	Date	Above Criteria	Unit Desc	Actual Value	Indicated Value	Relative % Diff
PE	37-099-0006-88101-1	1	2	20100203	N	Liters/minute LC	16.42	16.65	1.4

- The P/A Raw Data Report (AMP250) has been enhanced to show the Accuracy Audit ID and the Actual and Indicated Values for up to 10 levels.

***** ACCURACY DATA *****

Duration: 24 HOUR Method: 118 R & P Model 2025 PM2.5 Sequential w/WINS\GRAVIMETRIC Units: Liters/minute LC
 Audit Type: AUDIT BY REP ORG Audit Class: FLOW Acc Type: PE LPS: CERTIFIED ORIFICE DEVICE

Date	Aud ID	Zero Span	Rep	Qtr	Year	Actual	Indicated	Actual	Indicated	Actual	Indicated	Actual	Indicated	Actual	Indicated
20070523	1			2	2007	16.63	16.69								
20070820	1			3	2007	16.58	16.66								
20071128	1			4	2007	16.52	16.65								

- The Data Quality Assessment Report (AMP255) has been enhanced to show data for 10 levels.

The increased audit levels apply to the criteria gases, so you would see these 10 levels in the 255 under the Annual Performance Evaluations section for O₃, CO, NO₂, and SO₂.

Note that the column headers refer to two different levels, ie, level 1 or level 6. Data for levels 6 through 10 would appear on the second line of the appropriate column.

Annual Performance Evaluations

Pollutant: SO2 PQAQ: 0613 (Linn County Health Department) App A?: Yes

Year	Region	State	Site ID	POC	MT	Begin Date	End Date	Avg %D / Level	Q1	Q2	Q3	Q4	Criteria Met?	1-Point Conf. Limits	% Btwn Conf. Limits
								L1/6 L2/7 L3/8 L4/9 L5/10						Lower Upper	
2011	07	IA	09-113-0031	1	SP	01-JAN-11	13-DEC-11	-4.58	3	3	3	0	Y		
							(Levels 6 thru 10)	-3.25 -3.04							
2011	07	IA	09-113-0040	1	SP	01-JAN-11	13-DEC-11	-3.33	3	3	3	0	Y		
							(Levels 6 thru 10)	-1.89 -2.31							
2011	07	IA	SUMMARY					-3.96	6	6	6	0	100	-5.46 3.64	89
							(Levels 6 thru 10)	-2.57 -2.68							
SUMMARY	07	IA						-3.96	6	6	6	0	100	-5.46 3.64	89
							(Levels 6 thru 10)	-2.57 -2.68							

- Updated AQS P&A transaction generator files have been posted to the AQS website.
- We have run a data correction script to assign the correct audit level numbers to accuracy data that had been previously submitted with an incorrect level number.

During the last 5 years, data could have been submitted with an incorrect level number, since the validation "errors" were relaxed to "warnings" and the data was allowed into AQS.

The data correction script only affected parameters with defined audit levels (i.e., criteria gases and lead strip audits). The data correction script used the actual value, compared the actual value to the audit levels table, and returned the proper level number to the accuracy_audit records table.

If audit levels had not been defined, then no action was taken.

Note: The term "audit" is used here to describe the data associated with a unique occurrence of monitor + accuracy_audit_id + accuracy_date. One audit can be associated with up to 5 pairs of values. (One value is the true actual reference value; the other is the indicated value from the monitor being audited.) By incrementing the accuracy_audit_id, more than one audit can be reported on the same day for the same monitor.